[Total No. of Questions: 09]   0 6 JAN 2023   [Total No. of Pages: 2]
Uni. Roll No. ....

Program: B.Tech. ME (Batch 2018 onward)
Semester : 5th Semester
Name of Subject: Mechanical Measurement and Control .
Subject Code:.PCME-113
Paper ID: 16380
Scientific calculator is Allowed.

Time Allowed: 03 Hours

Max. Marks: 60

NOTE:

4. Parts A and B are compulsory
5. Part-C has Two Questions Q8 and Q9. Both are compulsory, but with internal choice
6. Any missing data may be assumed appropriately

Part – A
[Marks: 02 each]

Q1.

a. What is meant by normal distribution of error?
b. Differentiate tolerance and allowance.
c. What are thermistors?
d. How LVDT helps in measurement?
e. What is the use of Proving ring?
f. What are various flow visualization techniques?

Part – B
[Marks: 04 each]

Q2. What is "Systematic errors"? Explain briefly instrumental errors with example.
Q3. What is a comparator? Discuss about the mechanical comparator?
Q4. Describe with neat sketch, the construction and working of a Mcleod gauge.
Q5. Enumerate the methods which are used for measuring straightness. Explain any one method with diagram.
Q6. Which instrument is used to measure high temperature. Explain with neat sketch.
Q7. Describe open loop system with suitable example. State its advantages.

Part – C
[Marks: 12 each]

Q8. Explain briefly the following (with neat sketch) with their industrial applications; :
    1. Prony brake Dynamometer
    2. Rope brake Dynamometer

OR

Q8. Write short note on following (with neat sketch) with their industrial applications;
    1. Automatic control systems
    2. Thermal conductivity gauge and ionization gauge

0 6 JAN 2023

Q9. What are different standard inputs for studying the dynamic response of a system? Derive the equation of time response of first order system when subjected to unit ramp input.

<div align="center">OR</div>

Q9. While measuring a temperature the following ten readings were recorded;

39.6, 39.9, 39.7, 39.9,40, 39.8, 39.9, 39.8, 40.4, 39.7 ^{0}C

Calculate the following

- I. The Mean
- II. The std. deviation
- III. The probable error of one reading

<div align="center">***</div>

2 of 2